REFERENCE

Sheppard N & Simpson D. M., 1952, Quart. Rev. **6**, 1.
Harrah A. L. & Mayo D. W., 1960, J. Chem. Phys. **33**, 298.
Pentin Y. A. & Sharipov Z., 1963, Vestn. Mosk. Univ. **4**, 30.
Pentin Y. A. & Morozov E. V., 1966, Optics and Spectroscopy, **20**, 357.
Mclachlan R. D. & Nyquist R. A., 1968, Spectrochim. Acta, **24A**, 103.
Kondo S., Hirota E., & Morino Y., 1968, J. Mol. Spectros, **28**, 471.
Shimanouchi T. & Abe Y., 1968, J. Polym. Sci, Part A-2, **6**, 1419.

BOOK REVIEW

X-ray Diffraction Topography, by B. K. Tanner, Vol. 10 of the International Series in the Science of the Solid State, Pergamon Press, flexicover edn. (£ 6.25), 1976.

As far as the present reviewer's knowledge goes, probably this is the first well-written and comprehensive book on the celebrated field of X-ray diffraction topography, which took a new dimension with the well-known work performed by A. R. Lang in the year 1958 although the pioneering work on topography was done by the noted Indian scientist G. N. Ramachandran in the year 1944. In the past years, the works on X-ray topography were mainly described in pages of several journals, in technical reports, in a few review articles (by Lang and others), in conference volumes and in small chapters of text books on solid state physics and materials science. As such, this book is certainly 'assured of a ready welcome' to large number of workers devoted to fundamental and applied work on solid state physics and solid state devices. X-ray diffraction topography, a relatively new and powerful tool to study crystal imperfections in a non-destructive manner, is complementary to the widely used method of transmission electron microscopy (TEM), and is receiving attention in recent years not only from the X-ray diffractionists to unravel many new fundamental X-ray optical phenomena and the various implications of dynamical diffraction theory for perfect crystals but also from crystal growers and device manufacturers in the electronic industry who are trying for the quality control of the monolithic crystal devices.

The book contains seven chapters and is primarily divided into three sections. The first section concerns the basic dynamical X-ray diffraction theory (chapt. 1), the principal experimental techniques (chapt. 2) namely,

Berg-Barrett, Lang and Double crystal methods with a detailed discussion on Lang's technique and a brief mention on the very recent advancement on Synchrotron topography revealing newer features within a very short duration of experiment (of the order of few seconds only) and the nature and origin of contrasts observed in X-ray topographs (chapt. 3). The second section deals with the analysis of crystal defects with a mention on the dislocations, stacking faults, twins, ferro-electric and magnetic domains, ion implantations etc. (chap. 4). The third and final section reviews the X-ray topography applications in various types of crystalline materials from naturally occurring diamond, quartz, calcite, magnesite, etc. to crystals grown from liquid, solid and vapour growth processes which include large number of metals, semiconductors, oxides, whiskers and inorgsanic crystals (chapt. 5 to 7). These three sections, therefore, present a wide spectrum on the X-ray topography.

The author of the book, Dr. Brian Tanner has already done large number of works in this field both at Oxford and at Durham, and is an 'acknowledged leader' on topography. This well-written, nicely planned book is a valuable addition which will certainly enrich the literature on application of X-ray diffraction principles, and indispensable to students, researchers, solid state physicists and materials scientists. In fact, the publication of this book has wiped out a long-felt need for which Dr. Tanner must also be thanked. The bublisher of this book has also taken utmost care in brisging out a delightful presentation in flexicover get up.

S. P. S. G.